APPENDIX A

IN THE ABSTRACT

[A charged particle beam exposure system which exposes a pattern on an object to be exposed, while controlling the irradiation light of charged particle beams, based on correction exposure information appropriately selected and calibration information for correcting variations in the irradiation light among the charged particle beams. This system includes (a) a storage device storing (i) standard dose data for controlling the irradiation of the charged particle beams to an object to be exposed, (ii) plural pieces of proximity effect correction data for correcting the irradiation of the charged particle beams for each incidence position with respect to the object to be exposed, in order to reduce the influence of a proximity effect, and (iii) calibration data for correcting variations in the irradiation dose among a plurality of the charged particle beams, and (b) a controller for controlling the irradiation of each of the charged particle beams, based on the standard dose data, the proximity effect correction data, and the calibration data.]

-- A charged particle beam exposure system which draws a pattern on an object to be exposed by a plurality of charged particle beams emitted from a plurality of element electron optical systems includes (a) a storage device storing (i) a standard dose data for controlling the irradiation of charged particle beams to an object to be exposed, (ii) plural pieces of proximity

effect correction data for correcting the irradiation of the charged particle beams for each incidence position with respect to the object to be exposed, in order to reduce the influence of a proximity effect, and (iii) calibration data for correcting variations in the irradiation dose among the plurality of the charged particle beams emitted from the plurality of element electron optical systems, and (b) a controller for controlling the irradiation of each of the charged particle beams, based on the standard dose data, the proximity effect correction data, and the calibration data. --

IN THE SPECIFICATION:

Please substitute the paragraph beginning at page 7, line 25, and ending on page 8, line 3, with the following.

-- The conditions are preferably determined as at least one parameter among the [foundamental] fundamental conditions of the object to be exposed, the resist material, and a backward-scattering radius. --

Please substitute the paragraph beginning at page 24, line 14, with the following.

-- The irradiation light emitted by the electron gun 1a has a certain irradiation intensity, and is capable of controlling irradiation energy so as to be a desired value in accordance with the duty of the blanker. The term "proximity effect correction" hereafter referred to, is to perform a correction wherein the duty, which does not depend on the drawing pattern, but which is defined by the standard dose data in consideration of the conditions which an object to be exposed has, is

increased or [decrease] decreased by δ, and to thereby realize the optimum irradiation (exposure) state for the object to be exposed. --

Please substitute the paragraph beginning at page 27, line 19, and ending on page 28, line 5, with the following.

-- In step 1104, whether a proximity effect [collection] correction is necessary is judged based on the pattern drawn. If a proximity effect [collection] correction has been judged to be unnecessary, the evaluation is completed (S1105). On the other hand, if the proximity effect [collection] correction is judged to be necessary, the processing proceeds to step [110] S1106, one piece of correction exposure information is selected from the correction exposure information stored in the first correction factory memory 1020 (S1106), and a pattern is drawn based on the dose data considering the correction exposure information (S1107). This pattern is referred to as a "corrected pattern".

Please substitute the paragraph beginning at page 28, line 6, with the following.

-- In step S1108, the corrected pattern is evaluated, and in step S1109, whether the correction exposure information selected in step S1106 has been appropriate, and whether the corrected pattern is optimum, are judged. If the correction exposure information selected is judged not to be appropriate, the processing returns to step S1106, other correction exposure information is selected, and the same process as in steps S1107 and S1108 is repeated. If the corrected pattern is judged to be optimum in step S1109, the processing proceeds to step [110]

S1110, the correction exposure information is established (S1110), and the evaluation is completed (S1111). --

Please substitute the paragraph beginning at page 29, line 8, with the following.

-- Fig. 12 shows the procedure for performing a calibration of an element electron beam optical system. First, in step [1201] S1201, the optical axis of the irradiation light of the element electron beam optical system EL(i) to be corrected, is adjusted to the measuring position. The measuring position is provided on the stage 9 (Fig. 1), and is a position where the intensity of an irradiation light beam can be measured by a sensor 10. --

Please substitute the paragraph beginning at page 29, line 16, and ending on page 30, line 1, with the following.

-- Then, the intensity (irradiation dose) of the irradiation light from the element electron optical system EL(i) is measured, calibration data is determined (S1202), and whether the calibration data of all element electron optical systems have been determined is judged [(S1208)] (S1203). If all data has not been determined (S1203-No), the optical axis is adjusted to the image forming position of the irradiation light from the next element electron optical system (S1205), the intensity (irradiation dose) is measured in the same manner with respect to the irradiation light which has formed the image, and calibration data is determined (S1202). --

Please substitute the paragraph beginning at page 33, line 1, with the following.

-- Next, in step [1404] S1404, the computing element 1050 judges whether the proximity effect correction has been completed, and if the processing of the correction has not yet been completed, step [1403] S1403 is carried on, while, if the processing of the correction has been completed with respect to all fields to be exposed, the data controller outputs the calibration data of each of the element electron optical systems established in accordance with the procedure shown in Fig. 12, to the computing element 1050 (S1405). --

Please substitute the paragraph beginning at page 33, line 10, with the following.

-- The computing element 1050 performs a correction considering calibration data with respect to data which has completed a proximity effect correction (S1406), and if the calibration data of all of the element electron optical systems is reflected to the correction (S1407-Yes), the processing proceeds to step S1308. If not so (S1407-No), the processing of step [1406] S1406 is carried on. --

Please substitute the paragraph beginning at page 33, line 17, and ending on page 34, line 4, with the following.

-- In step [1408] S1408, the computing element 1050 outputs corrected dose data, which has been subjected to the proximity effect correction for each irradiation position and the correction for each element electron optical system by calibration data, with respect to the standard dose data, to the drawing dose data memory 1060. Meanwhile, the drawing dose data memory 1060 serves as a kind of buffer, and is not an indispensable element in the embodiments

in accordance with the present invention. The computing element 1050, therefore, may output the corrected dose data to the driver 1070. The driver 1070 controls the opening/closing of the blankers in accordance with the corrected dose data (S1409). --

IN THE CLAIMS

1. (Amended) A charged particle beam exposure system which draws a pattern on an object to be exposed by a plurality of charged particle beams emitted from a plurality of element electron optical systems, said system comprising:

(a) a storage device storing:

(i) a standard dose data for controlling the irradiation of charged particle beams to an object to be exposed[,];

(ii) plural pieces of proximity effect correction data for correcting the irradiation of the charged particle beams for each incidence position with respect to the object to be exposed, in order to reduce the influence of a proximity effect; and

(iii) calibration data for correcting variations in the irradiation dose among [a] the plurality of the charged particle beams emitted from the plurality of element electron optical systems; and

(b) a controller for controlling the irradiation of each of the charged particle beams, based on the standard dose data, the proximity effect correction data, and the calibration data.

13. (Amended) A method for correcting exposure data as claimed in claim 12, wherein the conditions are determined as at least one parameter among the [foundamental] fundamental conditions of the object to be exposed, the resist material, and a backward-scattering radius.

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